HOW DID THE WORLD EVOLVE ITSELF?

ADDRESS DELIVERED BY SIR EDMUND BECKETT, Q.C., BEFORE THE VICTORIA INSTITUTE OF LONDON.

(*Continued.*)

Therefore he has failed utterly on his very first proposition, and his whole case is gone. For even if he could prove that everything may follow from the conservation of force, yet, until he proves that tobe an "a priori" necessity, and not a law of nature which required a prime cause to make and to maintain it, his philosophy is nowhere, and can only be reconciled with truth and common sense in the same way as he "reconciles" religion with science.

Moreover he seems to forget that force must act in some particular direction or directions before it can "persist" or be transformed into any other directions and kinds of force. Abstract force in no particular direction is nonsense. And indeed, as he begins the real business of cosmogony he does begin with the definite force of universal attraction commonly called gravity, and it is material to see how he generates and deals with it. Many philosophers, from Newton downwards, have tried in vain to discover a physical cause of gravity, acting equally through a vacuum and the densest matter, according to the well-known law of distance, and with the standard intensity, which could by no conceivable possibility be ascertained except from experience,—a fact which Mr. Spencer entirely ignores. They have all been wasting their time even more than the explorers of the conservation of force did in not waiting for Mr. Spencer, who does the whole job for them in three lines:—"Matter cannot be conceived except as manifesting forces of attraction and repulsion. . . . . By a higher abstraction resulsts the conception of attractive and repulsive forces pervading space" (p. 224). And that is all: not the smallest scrap of a reason why there should be any attractive or repulsive forces, and what; or why the atoms of the universe should not have existed for any length of time in a state of perfect indifference as to approaching each other. Of course he allows atoms, ever so diffused, to be matter (224). He is continually saying that he has shown each force in succession to be a "corollary," or some other kind of offshot, of his persistent force, which we now find to be gravity or nothing. But all that he really does tell us of their generation is this comprehensive dictum: "The genesis of heat, which 'must' accompany augmentation of density" (only in some cases it perversely does not, as he himself elsewhere mentions) "is a consequence of another order. . . . . At a later stage light, as well as heat, 'will be' generated. Thus, without dwelling on the 'likehood' of chemical combinations and electrical disturbances, it is sufficiently 'manifest' that supposed matter to have originally existed in a diffused state (the homogeneous definite nebulous mass before described), the once uniform force which [beginning how and when?] caused its aggregation "must" have become gradually divided into different forces" (435); which is exactly what one force acting on homogeneous matter never could be by any possibility, as he has himself several times indirectly admitted.

But suppose for a moment that it could, and even must: what reason is that for concluding that the one initial force must divide itself into just the attractions of various kinds, and a few repulsions, heat, electricity, and all the chemical and organic forces requisite to generate the world? Mr. Spencer has not a word of reason to give for any one of these "mysterious transformations," and indeed admits that he is entirely "in the dark" about them, as we shall see presently. And yet he cooly pronounces all these "wills" and "musts" and "likelihoods"—an entirely new agent in natural philosophy—"deductions" from his one axiom, and announces at the beginning of Chapter 14 that he is now going to "verify deduction by induction;" which means a natural selection of such specimens as suit his views of all his various processes of evolution, "abandoning" all that do not, and then pronouncing the induction sufficient and complete(879).

If anything could make all this more ludicrous, he has done it by solemnly pronouncing "the transformation of the physical forces into each other profound mysteries," which "it is impossible to fathom" (p. 217). We are saved all trouble of refuting his impossible proposition that any primeval uniform force (which turns out to be self-existent gravity) could ever transform a homogeneous mass into a number of heterogeneous ones, by his saying himself that "where the only forces at work are those directly tending to produce aggregation or diffusion [of which latter force he has yet told us nothing] the whole histroy of an aggregate will comprise no more than the approaches of its components towards their common centre, and their recessions from it" (p.287). And again:— "Like units subject to a uniform force capable of producing motion in them will be moved to like degrees in the same direction" (p.481); which of course is quite true: and consequently all the assumptions, that one initial force acting on homogeneous matter would or could divide itself and the matter into different kinds of forces and matter, are mere nonsense, and have been refuted by himself.

Yet, in the face of those two true statements of the only possible effects of a uniform force acting on homogeneous matter, either all in parallel lines, or all towards one centre of gravity, he coolly says that "the first stage of nebular condensation would be the precipitation into *flocculi* of denser matter previously diffused through a rarer medinm" (p. 225). But how did the denser matter get previously diffused through a rarer medium in a homogeneous mass? And previously to what? We begin with the homogeneous mass, which is also inconceivable (he says) without gravity. Then the first stage necessarily must be (as he rightly said in the other place) motion of all the atoms in like degrees towards the centre; that is, the density must have increased in uniform spherical shells. How then was the precipitation or diffusion of denser matter through the rarer medium to begin?" In all this reason of his, every cart and its horse are made to change places just as they are wanted. Flocculi are the denser matter, and yet the denser matter could not possibly get into flocculi or clouds, which are (relatively to the rest) lumps, under the action of gravity or uniform compression. But flocculi are wanted, and therefore flocculi must come. The Spencerian philosophy can make greater things than these come when they are called.

The next thing to be conjured into automatic existence is the spirality of the contracting nebula of homogeneous matter, and that feat is performed thus: "The tractive force which would of themselves carry the matter in a straight line to the centre of gravity are opposed by the resistent forces of the medium through which it is drawn. The direction of movement must be the resultant of these, which, in consequence of the unsymmetrical form of the flocculus, must be a curve, directed, not to the centre of gravity, but towards one side of it" (p. 228). But towards which side? And which of all the infinity of axes through the centre of gravity is to be the axis of rotation? And how are all the flocculi throughout the universe to conspire to send resultants of gravity from every direction all into one direction round that axis when it has been discovered? And how did any unsymmetrical flocculus begin by means of uniform attraction moving homogeneous units to like degrees in a homogeneous mass? Mr. Spencer himself says (of course in another place—p. 223) that "the Absolute Cause of changes, no matter what may be their special natures, is incomprehensible." Here he means it to be comprehensible, and a necessary result of one initial force on one homogeneous mass. No doubt we might use the same words, only we should mean by them that the cause of all apparently automatic changes is the will of a Creator, who is incomprehensible beyond what he has told us of himself. But Mr. Spencer "abandons" him for a variety of incomprehensibles of his own, which can do nothing, and are nothing but mere words expressing that he knows nothing of those processes which he dogmatically calls corollaries of persistent force.

Hitherto he has deen inventing processes, not one of which could take place spontaneously under the universal laws of motion. Next we have some maxims, of the kind which he is pleased to call postulates; not that it signifies much what they are called. The first that I will notice is what he calls "the Instability of the Homogeneous," and sets up as an automatic cause of other incomprehensible changes. Of course the homogeneous will be unstable whenever new heterogeneous forces act upon it; but he has got to generate them yet; which he here professes to do by stating their effect after they are generated: another transposition of horse and cart, or cause and effect, and another contradiction of his own true axiom, that "like (or homogeneous) units subject to a uniform force will be moved to like degrees in the same direction."

His assertion that "all motion is rhythmical" (*i. e.*, periodic or vibratory) "if antagonistic forces act, a postulate which is necessitated by the form of our experience" (which, I suppose, means in English that they always do), is simply wrong both ways—*i. e.*, as a self-evident or *a priori* truth, and as an experimental law of nature. The vibrations of heat and sound and electricity are undoubtedly automatic in the sense that we know no cause for them but the will of whatever power made the laws of nature; but that has nothing upon earth to do with their being "necessary" or divinable *a priori*: and they are a very small fraction of all the motions of the universe. So far as we know, the universe could exist without electricity: at any rate no human being could have divined it. And what are the "antagonistic" forces in all these cases? Plenty of other motions, but not all, are in some sense periodic, where there are known causes for it in accordance with the laws of motion: that is, their rhythm is a consequence of them, and not an independent cause, which Mr. Spencer wants. And as for any of those rhythmical motions being "inevitable corollaries from the persistent of force," just let him give us what he conceives to be a mathematical deduction of them from that alone; and I remind him again that their being *consistent* with it is worth nothing, because all truths are consistent with each other, but they do not therefore all prove each other.

It would be more tedious than useful to go through Mr. Spencer's description of his other self-acting functionaries named above. In every case his mode of argument is the same as I have described already. The Multiplication of Effects is illustrated by the fact that "classes who before could not afford it now take annual trips to the sea; visit their distant relations; make tours," and on (455); and then he says that "for symmetry's sake it is proper briefly to point out"—that is, to *say*—"that the Multiplication of Effects is also a corollary of the" correlation or conservation of forces. He might as well say the multiplication table is. It does not need twenty-eight pages to prove that effects accumulate by multiplication, which is all that these pages practically come to; nor are we much nearer the solution of problem of the prime cause of all things by being told such things as that. Indeed in that very chapter we learn the disappointing news that, after all these wonderful phrases and new names for old processes, we are as far off as ever from any solution of that problem. For he says, at p. 444, that "we are still in the dark respecting those mysterious properties which make the germ, when subject to fit influences, undergo the special changes beginning (and continuing) these transformations." And also, at p. 217, that "they are not profounder mysteries than the transformation of physical forces into each other", which actually is the one "self-evident truth or meaning" of persistent or conservation of force. Perhaps Mr. Spencer, or one of his admirers who think they understand his Philosophy, will condescend to explain some day how profound mysteries of experience can be necessary results and corollaries of a self-evident truth, which was itself only discovered by a long course of experimental investigation; and then how all knowledge is unified by telling us that all these things are unfathomable, and that the philosopher is hopelessly in the dark about them.

(*To be Continued.*)

THE STORY-TELLER.

Mr. Bird's Best Umbrella

BY F. W. ROBINSON.

Author of "The Hands of Justice," "A Woman's Ransom," " or Humanity," &c., &c

(*Concluded.*)

Still he remained remarsably non-obtrusive; he did not attempt to force his conversation upon me in any way, and presently he was walking down the jetty with Mr. Brian, and talking and laughing as if he had known him all his life.

I thought all this was a new and deep-laid scheme of his, but it was really Lily Brian who was at the bottom of it all, or who at least induced her parents and her brother to say from that day 'good-morning' to Mr. Bird, and even to shake hands with him Hence I was obliged to say 'good-morning, also when he he directly addressed me, and to become by degrees on speaking terms with him again, and almost to forget that umbrella question which had been a bone of contention—between us. Not that the umbrella was off his mind in any way, for he had been introduced to Captain Choppers on one occasion, by Captain Choppers's express request, as that gentleman wanted to borrow his telescope, and to my astonishment I heard Mr. Bird say five minutes after the introduction—

'You see, it was not for the value of the umbrella, but because of the associations connected with it. I hope you understand, captain;'

'I understand perfectly,' was the reply; 'but that was no reason why you should have kicked up such an abominable uproar, sir.'

Captain Choppers had borrowed the telescope, and was now dominant and rude.

The time was drawing near towards the end of the holiday when Mr. Bird and I were friends. I may remark, actually friends, although I will say very firmly, and despite Lily Brian's opinion, nothing more than friends. Mr. Bird's holiday would expire a few days before our own, I learned, and though I would not have owned it for untold wealth, I was sorry he was going back to London. He had informed me of his position by that time, and of his prospects for the futute, or of some of them. He had given up the business, and his father's business before him, of carver and gilder in the Goswell-road; he was very clever at his trade, I post of superintendent of work by an eminent firm in Oxford-street, with whom he had done business for years, and at a very respectable felt sure' for he had been offered the salary indeed

He was exceeding communicative the last day of his stay in Margate; we were sitting together under the shelter of the verandah of the refreshment-room, with the band playing out in the rain. We were alone for a wonder; the Brians were on the rocks in search of anemones, with the exception of Lily, who had left me half an hour ago, with an injunction to come home if it 'poured,' and with an umbrella to shelter me, as I had ventured out without my own. She had seen—having very sharp eyes of her own—Mr. Geoffry Bird advancing down the jetty and had made some trivial little excuses to leave me, 'to give the poor fellow a chance,' she told me afterwards. And there he was sitting by my side, cool and comfortable, and with the rain coming down in big drops and startling and confounding the pleasure-seekers.

'I shall be quite the gentleman soon, Miss Neild,' he said with a laugh, 'and with a soul above shopkeeping. I only want a few friends about me to make life worth living; but I have never had any friends. Never had the time, or never saw anybody who was worth taking any trouble about until—until lately.'

I could not reply to this. I did not know what he meant by 'lately.'

'People never took to me either,' he confessed ruefully; 'I have a bad habit of speaking out what is on my mind, and I'm inquisitive and suspicious at times, and so on. Altogether a beastly character.'

He waited for me to reply to this. I had thought him abrupt and inquisitive and suspicious, but that seemed a very long time ago now. He had improved *wonderfully* of late days; there were little traits of character, of frankness, earnestness, generosity, one could almost admire, but I was not going to tell him so, though he waited patiently as if he expected something of the kind. As if men were not vain enough in themselves, without being told of their accomplishments!

'You would not like anybody to say that but yourself,' I said, however, and it was a remark which did not commit me to anything.

'No I should knock him down probably,' he replied, 'especially if it were the captain or that railway goods inspector fellow.'

'Don't you like them?' I asked innocently.

'Do you?' he rejoined.

'They are old friends, almost.

'You don't make all your lodgers friends?' he remarked.

'Not always.'

'I should think not,' very scornfully now.

'But these two gentlemen knew me when I was a little girl.'

'Ah! That makes a difference, I suppose; that's why they are both so fond of you,' he added, with a sigh.

'Fond of me!'

'You might marry either of them tomorrow, if you cared to hold up your little finger—I can see that.'

'What nonsense!'

'Oh! it's true enough,' he cried.

I laughed. 'Then I shan't hold up my little finger.'

'That's right,' he said, and he actually drew a long deep breath, as though it relieved him to hear me say so;— 'for that captain's a pompous old noodle—a selfish party who's stuck to my telescope a whole week—and the railway man would fidget any woman out of her life in a fortnight.'

'What's the matter with him?'

'He's an old woman, that's all.'

'Upon my honor, you are very uncomplimentary in your verdict upon my lodgers.'

'I hate your keeping a lodging house,' he muttered.

'My poverty, and not my will, consents,' I answered.

He was very silent for a long time now. The visitors had hurried homewards or had sought shelter like ourselves, the band had ceased playing, the rain was coming down in earnest.

'May I ask a favor of you before I go back to London,' he said, suddenly and very hoarsely.

'What is it?'